

| Table 4 | | | | | | |
|--|--|----------|------|------------|--------------------|-----------------|
| ALTERNATIVE 1 CONNECTION TO TOWN OF TWISP WATER SYSTEM COST ESTIMATE CONTAMINATED WELL WATER REMOVAL ASSESSMENT TWISP, WASHINGTON | | | | | | |
| Item | Description | Quantity | Unit | Unit Price | Amount | Source |
| Capital Costs | | | | | | |
| | New 12" DI Pipeline | 850 | lf | \$97.00 | \$82,450 | (1) & (2) & (3) |
| | New 8" DI Pipeline | 7,200 | lf | \$80.00 | \$576,000 | (2) & (3) |
| | Hydrants | 24 | ea | \$1,300.00 | \$31,200 | (1) |
| | SUBTOTAL, CAPITAL COSTS | | | | \$689,650 | |
| | Contingency | 20% | | | \$137,930 | |
| | Subtotal | | | | \$827,580 | |
| | Administrative and Engineering Costs | 25% | | | \$206,895 | |
| | TOTAL CAPITAL COSTS | | | | \$1,034,475 | |
| Annual Costs Per Household | | | | | | |
| | Utility Rates-Town of Twisp | 12 | mo | \$19.78 | \$237 | (3) & (4) |
| | TOTAL ANNUAL COST PER HOUSEHOLD | | | | \$237 | |
| Annual Sampling Costs (Quarterly Sampling) | | | | | | |
| | Two person team | 8 | day | \$560.00 | \$4,480 | (2) |
| | Travel, lodging, per diem, ODC | 4 | trip | \$375.00 | \$1,500 | (2) |
| | Analyses (Metals in Water) | 60 | ea | \$150.00 | \$9,000 | (2) |
| | Report | 4 | ea | \$1,000.00 | \$4,000 | (2) |
| | TOTAL ANNUAL SAMPLING COSTS | | | | \$18,980 | |

Sources

(1) R.S. Means, includes 35% overhead and profit

(2) E & E

(3) Town of Twisp

(4) 300 gallons/day (From City of Chehalis) x 30 days/mo.

9,000 gallons/mo.

= \$16.20 + (9,000 - 8,943) / 7.49 * 0.47

\$19.78 /mo

| Table 5 | | | | | | |
|--|--|----------|------|-------------|------------------|-----------|
| ALTERNATIVE 2 COMMUNITY WELL COST ESTIMATE CONTAMINATED WELL WATER REMOVAL ASSESSMENT TWISP, WASHINGTON | | | | | | |
| Item | Description | Quantity | Unit | Unit Price | Amount | Source |
| Capital Costs | | | | | | |
| | New Well (24" dia. X 40') | 1 | ea | \$49,700.00 | \$49,700 | (1) |
| | New 4" DI Pipeline | 5,100 | lf | \$72.00 | \$367,200 | (2) & (3) |
| | Well House | 1 | ea | \$2,000.00 | \$2,000 | (2) |
| | Electrical | 1 | ea | \$1,000.00 | \$1,000 | (3) |
| | SUBTOTAL, CAPITAL COSTS | | | | \$419,900 | |
| | Contingency | 20% | | | \$83,980 | |
| | Subtotal | | | | \$503,880 | |
| | Administrative and Engineering Costs | 25% | | | \$125,970 | |
| | TOTAL CAPITAL COSTS | | | | \$629,850 | |
| Annual Costs Per Household (Assumes 15 households with equal shares) | | | | | | |
| | Electric @ \$.08/KW-H | 12 | mo | \$7.02 | \$84 | (2) & (4) |
| | Maintenance | 12 | mo | \$6.67 | \$80 | (2) |
| | Qualified Operator | 1 | yr | \$333.33 | \$333 | |
| | TOTAL ANNUAL COST PER HOUSEHOLD | | | | \$498 | |
| Annual Sampling Costs (Quarterly Sampling) | | | | | | |
| | Two person team | 8 | day | \$560.00 | \$4,480 | (2) |
| | Travel, lodging, per diem, ODC | 4 | trip | \$375.00 | \$1,500 | (2) |
| | Analyses (Metals in Water) | 60 | ea | \$150.00 | \$9,000 | (2) |
| | Report | 4 | ea | \$1,000.00 | \$4,000 | (2) |
| | TOTAL ANNUAL SAMPLING COSTS | | | | \$18,980 | |

Sources

- (1) R.S. Means, includes 35% overhead and profit
 (2) E & E
 (3) Town of Twisp
 (4)

300 gallons/day (From City of Chehalis)
 3 Peak demand factor
 15 Households 0.02086 cfs
 9.375 gpm 539 ft head
 701.6 ft-lbs/sec power req'd
 65% Efficiency
 1,079.4 ft-lb/s req'd = 1.96 HP
 1.83 KW at 80% efficiency

Table 6

ALTERNATIVE 3
TREATMENT SYSTEMS AT EACH DWELLING (POINT OF ENTRY)
CONTAMINATED WELL WATER REMOVAL ASSESSMENT
TWISP, WASHINGTON

| Item | Description | Quantity | Unit | Unit Price | Amount | Source |
|---|--|----------|--------------|------------|-----------------|--------|
| Capital Costs per Household | | | | | | |
| | Treatment System | 1 | ea | \$3,880.00 | \$3,880 | (5) |
| | Water Storage Tank (275 gallon) | 1 | ea | \$400.00 | \$400 | (1) |
| | SUBTOTAL, CAPITAL COSTS | | | | \$4,280 | |
| | Contingency | 20% | | | \$856 | |
| | Subtotal | | | | \$5,136 | |
| | Administrative and Engineering Costs | 25% | | | \$1,284 | |
| | TOTAL CAPITAL COSTS PER HOUSEHOLD | | | | \$6,420 | |
| | TOTAL CAPITAL COSTS | | | | \$96,300 | |
| Annual Costs Per Household | | | | | | |
| | Replenish Media | 2 | Changes/year | \$1,380.00 | \$2,760 | (5) |
| | Dispose of Spent Media | 2 | /year | \$200.00 | \$400 | (1) |
| | TOTAL ANNUAL COST PER HOUSEHOLD | | | | \$3,160 | |
| Annual Sampling Costs (Quarterly Sampling) | | | | | | |
| | Two person team | 8 | day | \$560.00 | \$4,480 | (2) |
| | Travel, lodging, per diem, ODC | 4 | trip | \$375.00 | \$1,500 | (2) |
| | Analyses (Metals in Water) | 60 | ea | \$150.00 | \$9,000 | (2) |
| | Report | 4 | ea | \$1,000.00 | \$4,000 | (2) |
| | TOTAL ANNUAL SAMPLING COSTS | | | | \$18,980 | |

Sources

- (1) R.S. Means, includes 35% overhead and profit
(2) E & E
(3) Town of Twisp
(4) 300 gallons/day (From City of Chehalis) x 30 days/mo.

9,000 gallons/mo.

$$= \$16.20 + (9,000 - 8,943) / 7.49 * 0.47$$

\$19.78

- (5) Vendor

Table 7

ALTERNATIVE 4
TREATMENT SYSTEMS AT EACH DWELLING (POINT OF USE) COST ESTIMATE
ALDER MILL CONTAMINATED WELL WATER REMOVAL ASSESSMENT
TWISP, WASHINGTON

| Item | Description | Quantity | Unit | Unit Price | Amount | Source |
|---|--|----------|--------------|------------|-----------------|-----------|
| Capital Costs per Household | | | | | | |
| | Treatment System | 2 | ea | \$710.00 | \$1,420 | (1) & (5) |
| | Water Softener | 1 | ea | \$1,030.00 | \$1,030 | |
| | SUBTOTAL, CAPITAL COSTS | | | | \$2,450 | |
| | Contingency | 20% | | | \$490 | |
| | Subtotal | | | | \$2,940 | |
| | Administrative and Engineering Costs | 25% | | | \$735 | |
| | TOTAL CAPITAL COSTS PER HOUSEHOLD | | | | \$3,675 | |
| | TOTAL CAPITAL COSTS | | | | \$55,125 | |
| Annual Costs Per Household | | | | | | |
| | Replace Membrane | 1 | Changes/year | \$100.00 | \$100 | (5) |
| | Fill Water Softener | 6 | /year | \$8.00 | \$48 | (5) |
| | TOTAL ANNUAL COST PER HOUSEHOLD | | | | \$148 | |
| Annual Sampling Costs (Quarterly Sampling) | | | | | | |
| | Two person team | 8 | day | \$560.00 | \$4,480 | (2) |
| | Travel, lodging, per diem, ODC | 4 | trip | \$375.00 | \$1,500 | (2) |
| | Analyses (Metals in Water) | 60 | ea | \$150.00 | \$9,000 | (2) |
| | Report | 4 | ea | \$1,000.00 | \$4,000 | (2) |
| | TOTAL ANNUAL SAMPLING COSTS | | | | \$18,980 | |

Sources

(1) R.S. Means, includes 35% overhead and profit

(2) E & E

(3) Town of Twisp

(4) 300 gallons/day (From City of Chehalis) x 30 days/mo.

9,000 gallons/mo.

=\$16.20+(9,000-8,943)/7.49*0.47

\$19.78

(5) Vendor

Table 8

**COMPARISON OF ALTERNATIVES
ALDER MILL CONTAMINATED WELL WATER REMOVAL ASSESSMENT
TWISP, WASHINGTON**

| Alternative Number | 1 | 2 | 3 | 4 |
|--|--|--------------------------------------|--|--|
| Description | Connect to Town of Twisp Water System | Connect to New Community Well | Connect to Individual Treatment Units at Point of Entry | Connect to Individual Treatment Units at Point of Use |
| Attribute | | | | |
| Capital Cost | \$1,034,475 | \$629,850 | \$96,300 | \$55,125 |
| Yearly Household Cost | \$237 | \$498 | \$4,400 | \$148 |
| Yearly Sampling Cost | \$18,980 | \$18,980 | \$18,980 | \$18,980 |
| Fire Protection | Large | Moderate | Low | Low |
| Reliability of Maintenance | Good | Uncertain | Uncertain | Uncertain |
| Expandability | Good | Poor | Good | Good |
| Implementability | Fair | Fair | Good | Good |
| Reliability of Service | Good | Uncertain | Uncertain | Uncertain |
| Extraordinary Care Required by Dwelling Occupant to Avoid Contaminated Water | No | No | No | Yes |